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EXAMINER

WARTALOWICZ, PAUL A

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Please find below and/or attached an Office communication concerning this application or proceeding.

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/751,091
Filing Date: January 02, 2004
Appellant(s): MOECKLY ET AL.

Tong Wu
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 4/14/10 appealing from the Office action mailed 10/14/09.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:
65-68 and 71-75.

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the

Art Unit: 1793

subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

WITHDRAWN REJECTIONS

The following grounds of rejection are not presented for review on appeal because they have been withdrawn by the examiner. The rejection under 35 USC § 112, ¶ 1 of claims 71-74 has been withdrawn.

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

Hunt, B.D. et al. "All high Tc edge-geometry weak links utilizing Y-Ba-Cu-O barrier layers." Applied Physics Letters, Vol. 59, Issue 8, pp 982-984.

5,945,383

Hunt

8-1999

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 65-68, 71-75 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hunt ("All high T_c edge-geometry...").

Hunt teaches a superconductor Josephson element (pp. 982) comprising a first layer of YBCO base electrode deposited on a surface of a substrate (pp. 982-983), thereafter a barrier layer of non-superconducting YBCO deposited on the base

Art Unit: 1793

electrode, thereafter a counter-electrode YBCO superconducting layer deposited on the non-superconducting barrier layer YBCO (pp. 982-983). Hunt also discloses that the Josephson junction has a J_c of $8.3 \times 10^3 \text{ A/cm}^2$ and a $R_n A$ of $1.2 \times 10^{-8} \Omega\text{-cm}^2$ for a barrier layer thickness of 100 \AA wherein the barrier layer is uniform (pp. 982-984).

Regarding the limitation that the barrier comprises a non-superconducting, ion-modified surface layer of the first superconductive oxide, it appears that Hunt teaches a substantially similar product, i.e. a non-superconducting barrier layer formed of non-superconducting YBCO which has close lattice matching with superconducting layer of YBCO (pp. 982-984). It appears that the instantly claimed product by process is the same as that which is claimed (a non-superconducting barrier layer formed of non-superconducting YBCO which has close lattice matching with superconducting layer of YBCO). When the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct and not the examiner to show the same process as making. *In re Brown*, 173 USPQ 685 and *In re Fessman*, 180 USPQ 324.

Claims 65-68, 71-75 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hunt (US 5945383).

Hunt teaches a superconductor Josephson element (col. 3) comprising a first layer of YBCO base electrode deposited on a surface of a substrate (col. 3-4), thereafter a barrier layer of non-superconducting YBCO deposited on the base electrode, thereafter a counter-electrode YBCO superconducting layer deposited on

Art Unit: 1793

the non-superconducting barrier layer YBCO (col. 3-4). Hunt also discloses that the Josephson junction has a J_c of $8.3 \times 10^3 \text{ A/cm}^2$ and a $R_n A$ of $1.2 \times 10^{-8} \Omega\text{-cm}^2$ for a barrier layer thickness of 100 \AA wherein the barrier layer is uniform (col. 7-8).

Regarding the limitation that the barrier comprises a non-superconducting, ion-modified surface layer of the first superconductive oxide, it appears that Hunt teaches a substantially similar product, i.e. a non-superconducting barrier layer formed of non-superconducting YBCO which has close lattice matching with superconducting layer of YBCO (col. 4). It appears that the instantly claimed product by process is the same as that which is claimed (a non-superconducting barrier layer formed of non-superconducting YBCO which has close lattice matching with superconducting layer of YBCO). When the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct and not the examiner to show the same process as making. *In re Brown*. 173 USPQ 685 and *In re Fessman*, 180 USPQ 324.

(10) Response to Argument

Applicant argues at page 12, ¶ 2 that *Abbott Labs. v. Sandoz, Inc.* has held that product-by-process claims are limited by the process recited in the claims and that, even though the court's analysis in *Abbott* is focused on infringement, it is well established that patent claims are construed the same way for validity and for infringement. However, *Abbott* only holds that product-by-process claims are defined by the process regarding infringement. It is well established that "even though product-by-process claims are limited by and defined by the process, determination of patentability

Art Unit: 1793

is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” *In re Thorpe*, 777 F.2d 695, 698 (Fed. Cir. 1985) (citations omitted). “[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself.” *Id.* at 697, quoted in *Abbott Labs. v. Sandoz, Inc.*, 566 F.3d 1282, 1292 (Fed. Cir. 2009) (en banc).

Additionally, “the lack of physical description in a product-by-process claim makes determination of the patentability of the claim more difficult, since in spite of the fact that the claim may recite only process limitations, it is the patentability of the product claimed and not of the recited process steps which must be established. We are therefore of the opinion that when the prior art discloses a product which reasonably appears to be either identical with or only slightly different than a product claimed in a product-by-process claim, a rejection based alternatively on either section 102 or section 103 of the statute is eminently fair and acceptable. As a practical matter, the Patent Office is not equipped to manufacture products by the myriad of processes put before it and then obtain prior art products and make physical comparisons therewith.” *In re Brown*, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972).

Applicant argues at page 12, ¶ 3 that the Hunt 1991 article ("Hunt article") and the Hunt patent (collectively "Hunt references") both fail to disclose or suggest the process features of the rejected claims or how the process features could have been obvious in light of the references. However, for the reasons described *supra*, the patentability of product-by-process claims relies on the product claimed and not the recited process steps.

Additionally, the Hunt references teach a first layer comprising a high temperature superconductor (article, page 982, col. 1, ¶ 3) (patent, col. 6, lines 32-60), a second layer comprising an oxide high-temperature superconductor (article, page 982, col. 1, ¶ 3) (patent, col. 6, lines 32-60), and a third layer connecting the first and second layers that comprises a non-superconducting barrier layer (article, page 982, col. 1, ¶ 3; page 984, col. 1, ¶ 1) (patent, col. 6, lines 32-60). While the Hunt references do not teach ion-modification of the first layer to form a third layer of non-superconducting material, the Hunt references do teach depositing a third layer of non-superconducting material (article, page 983, col. 1, ¶ 1) (patent, col. 5, lines 50-60). Therefore, it appears that the Hunt references teach the structure as claimed: a first superconducting layer, a second superconducting layer, and a third non-superconducting layer connecting the first and second superconducting layers. Applicant has not proffered any substantive argument or objective evidence that demonstrates that the product of the Hunt references is different from the product claimed.

Applicant argues at page 13, ¶ 1 that it is conceded in the Hunt article that the non-superconducting barrier has not been extensively characterized, and that the oxygen stoichiometry and structure was not known, there are numerous possible phases and therefore no reasonable basis to assert that the barriers of the claimed product disclosed in the Hunt Article or Hunt Patent are substantially identical. However, a specific phase of a non-superconducting barrier layer is not claimed. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., specific phase of the non-superconducting layer) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Additionally, it appears that the only claimed characterization of the Josephson junction (which includes the third non-superconducting layer) is the J_c and R_nA at 4.2 K. Both the Hunt article and the Hunt patent teach a J_c and R_nA at 4.2 K that falls within the claimed ranges. See instant claims 65, 67, 71, and 73 (J_c of $1 \cdot 10^3$ - $5 \cdot 10^6$ A/cm² and a R_nA of $1 \cdot 10^{-9}$ - $3 \cdot 10^{-7}$ Ω -cm² at 4.2 K); Hunt patent (col. 7, line 60-col. 8, line 5) (J_c of $8.3 \cdot 10^3$ A/cm² and a R_nA of $1.2 \cdot 10^{-8}$ Ω -cm² at 4.2 K); and Hunt article (page 984, col. 1, ¶ 1) (J_c of $8.3 \cdot 10^3$ A/cm² and a R_nA of $1.2 \cdot 10^{-8}$ Ω -cm² at 4.2 K). This comparison of the respective J_c and R_nA at 4.2 K of the prior art and instant claims is evidence that the non-superconducting barrier layer of the prior art is substantially similar to the non-superconducting barrier layer of the instant claims. The Office is unaware of any

Art Unit: 1793

objective comparison that demonstrates a structural difference between the non-superconducting barrier layer formed by the process of the prior art and the non-superconducting barrier layer formed by the process steps of the instant claims. Once the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983).

The claims require that the third layer is a barrier layer (claims 67, 73), non-superconducting (claims 65, 67, 71, 73), and uniform (claim 75). Similarly, the Hunt article (page 982, col. 1, ¶ 3; page 983, col. 1, ¶ 1) and the Hunt patent (col. 3, lines 15-20) teach that the third layer is a barrier layer and is non-superconducting. The Hunt article (page 984, col. 1, ¶ 1; page 984, col. 2, ¶ 1) and the Hunt patent (col. 8, lines 1-10, 15-25) also teach that the third layer is uniform. This comparison of the third layer of the instant claims and the third layer of the Hunt references is further evidence that the (third) non-superconducting barrier layer of the prior art is substantially similar to the (third) non-superconducting barrier layer of the instant claims.

Additionally, the limitation of being “an ion-modified portion” is so broad as to not impart any particular structure or phase of non-superconducting phase. The claim does specify the process so as to distinguish the structure of the product formed therefrom. Therefore, it does not appear that the process limitations of the instant claims limit the product in a substantially structural manner.

Art Unit: 1793

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

Art Unit: 1793

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Paul Wartalowicz/

June 30, 2010

Conferees:

/Stanley Silverman/

Supervisory Patent Examiner, AU 1793

/Tom Dunn/

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